

Remarks

The above Amendments and these Remarks are in reply to the Office Action mailed November 22, 2002. Claims 1 and 42-56 were pending in the Application prior to the outstanding Office Action. In the Office Action, claims 1 and 42-56 were rejected. The present Response amends claims 1, 43-45, 49, 51-53, and 55-56, leaving for the Examiner's present consideration claims 1 and 42-56. Reconsideration of the rejections is respectfully requested.

I. Rejection Under 35 U.S.C. §112

Claims 1, 51, 53, 55, and 56 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicants respectfully disagree with the rejection, as the claims viewed in light of the specification would convey such to one skilled in the relevant art. The rejected claims have, however, been amended for purposes unrelated to patentability in order to clarify that which is intended to be recited in the respective claims. As the claims no longer contain the language in question, Applicants respectfully request that the rejection with respect to claims 1, 51, 53, 55, and 56 be withdrawn.

II. Rejection under 35 U.S.C. §102/103

Claims 1 and 42-56 are rejected under 35 U.S.C. §102(b) as being anticipated by, or in the alternative under 35 U.S.C. §103(a) being obvious over *Nulman* (US 4,496,419).

Claim 1 as amended recites "exposing the hard mask to a stream of oxidizing gas in order to form an oxide skin on the exposed surface of the hard mask." *Nulman* does not disclose such a limitation, and therefore cannot anticipate claim 1. Regarding obviousness, such a limitation is neither taught nor disclosed by *Nulman*. *Nulman* deposits a Si film to serve "as an oxidation mask for the Al film." The layer of photoresist is then exposed "until the surface of the Si film is reached." The exposed portions of the Si layer "are next etched in a CF4 reactive

ion etching step” in order to “expose portions of the upper surface of the metal film.” The “exposed portions of the metal film layer” are then “locally oxidized by an O₂ plasma where not protected by the oxidation mask.” (Col 4, line 14-Col. 5, line 9).

These steps are not necessary, nor are they the same as, the elements recited in claim 1. In Applicants’ claim 1 as amended, a workpiece is selected “with a hard mask deposited over a layer to be etched...the hard mask further defining a pattern including at least one portion having a critical dimension,” “exposing the hard mask to a stream of oxidizing gas in order to form an oxide skin on the exposed surface of the hard mask,” and “processing the workpiece ... whereby the layer is etched corresponding to the pattern of the hard mask, and the growth of the layer during the etch is minimized in the portion of the layer corresponding to the critical dimension.” Such limitations are neither taught nor suggested by *Nulman*. Further, not only is there no motivation to provide a stream of oxidizing gas with the oxygen plasma/plasma mask system of *Nulman*, there is no suggestion that using a stream of oxidizing gas instead of an oxygen plasma/plasma mask combination, either during or before the etch step, would work in such a process with any likelihood of success. Further, *Nulman* does not teach or suggest “the hard mask further defining a pattern including at least one portion having a critical dimension,” “the layer is etched corresponding to the pattern of the hard mask,” or “the growth of the layer during the etch is minimized in the portion of the layer corresponding to the critical dimension.” As *Nulman* does not teach or suggest the elements of claim 1, neither can *Nulman* render claim 1 obvious.

Independent claims 51 and 53 recite similar limitations and therefore are similarly neither anticipated nor rendered obvious by *Nulman*. Claims 42-50, 52, and 54-56 depend from these claims and therefore also should not be rendered anticipated or obvious by *Nulman*. Applicants therefore respectfully request that the rejection with respect to claims 1 and 42-56 be withdrawn.

III. Amendments to the Claims

Claims 1, 43-45, 49, 51-53, and 55-56 have been amended in order to clearly and particularly point out and distinctly claim that which is regarded as the invention of the respective claims. The amendments are not intended to alter the scope of the respective claim or in any way limit any equivalence thereof.

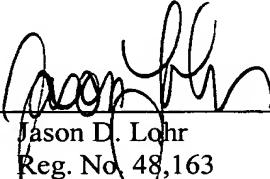
IV. Conclusion

In light of the above, it is respectfully submitted that all of the claims now pending in the subject patent application should be allowable, and a Notice of Allowance is requested. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

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